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THE MISSOURI MINER.

Missouri School of Mines and Metallurgy, Rolla, Missouri.

Vol. 16

Tuesday, November 26, 1929

Number 10

CIVIL ENGINEER'S ISSUE

MINERS' OVERWHELM TALEQUAH 28-0

1929 FOOTBALL SCHEDULE

Miners 13, Kirksville 12
Lombard 7, Miners 6.
Miners 73, McKendree 0
Miners 19, Central 6
Miners 0, Westminster 12
Maryville 6, Miners 33
Miners 28, Northeast Teachers 0
Thanksgiving—Drury, Springfield.

THEN AND NOW—

WHEN AND WHAT.

For reasons varying with the individual and his special vacation, men with a purpose desire some insight into the future along their particular line of endeavor. What may be anticipated? Will the curve turn up or down? Will the fashion, custom or demand change? How soon will the process or machine become obsolete? How long can the people be fooled? These questions, in their various forms and in the order of their importance to various interests, are constantly before us. Experts especially trained, or who by their works have proved their fitness, are busy tabulating, collecting, and coordinating statistics, and plotting curves up to the latest returns.

The U. S. Census, conducted at a staggering cost, and worth it, is the most extensive and reliable source of statistics for such purposes but unfortunately most of such information when published is several years behind time.

While the writer has not definite statistics to quote or plot, it is quite apparent, to the well informed in such lines, that the engineer, of whatever specialty, is now taking, as he long ago should have, duties as advisor and director as well as those of

DEDICATION

To Professor Elmo Golightly Harris, head of the department of Civil Engineering and grand old man of engineering at M. S. M., we respectfully dedicate this issue.

Professor Harris is the possessor of a most enviable record of achievement and service. With the exception of two years Professor Harris has served continuously as department chief since 1891. During the years 1901-02 and 1903 he served as Director of this school, having been appointed shortly after assuming his duties as department head.

Long before most of us appeared upon this earth Professor Harris graduated in Civil Engineering from the University of Virginia and started on his career in 1882.

At present he is giving the same sterling, unflinching service which has characterized his thirty-six years as head of the department. Masonry Design, Public Water Supply and Drainage are the major subjects which he is teaching. That the coming years will bring more of the same success and a richly deserved reward to Professor Harris is the wish of the students of M. S. M.

A. S. C. E.

To get the latest dope on any subject the Civil Engineer naturally gravitates towards one of two centers. If he is desirous of bringing himself up-to-date on any campus occurrence and comment he presents himself at King Joe Baty's court in Norwood; where without ceremony he greets the Court Jester and joining the other attendants gives ear to whatever is brought before the court. If, however, he has an interest in keeping up with the latest developments in Civil Engineering practice he waits till the regular fortnightly meeting of his engineering order,

Completely outplaying the Teachers from Oklahoma in every period of the game the Miners annexed another victory to their string of conquests for the season. The Miner passing machine was functioning almost perfectly. Three of the touchdowns were made directly from long passes while the fourth was tallied after Hasslers 35 yard pass to Schofield had placed the ball within easy scoring distance.

The Miners played heads up football and so were able to take advantage of the four fumbles credited to the Redmen. Although the Teachers charged hard thruout the game they proved no match for the heavier, smooth working Miner eleven.

Malik seemed to have glue on his hands when it came to catching passes Saturday. He snatched 3 passes from the air over the goal line for as many touchdowns for the Miners. Hasslers perfect heaves of the oval made Malik's work much easier and accounted for numerous gains for the Miners. Thornton continued his line battering tactics which caused the hard hitting Redmen forward wall to falter.

The Redmen put up the hardest fight in the initial period where they accounted for several first downs thru the Miner line, but the Miner forward wall soon tightened and since the Teachers had a very poor passing attack they were forced to punt almost as soon as they gained possession of the ball.

The first few minutes of the game were spent in an exchange of punts while quarterbacks looked for weak points in the opposing line. The Miners recovered a fumble made by the Redmen but failed to make the ten yards in four downs. Later in the quarter the Miners recovered another fumble and started a march down the field that landed them on the Teachers 25 yard line as the quarter ended. As the second quarter opened Thorn-

Continued on page eight.

Continued on page two.

ton and Hassler advanced the ball several yards by line plays, then Hassler passed over the goal line to Malik for the first touchdown. On a lateral pass around end the Miners fumbled but recovered and crossed the line for the extra point. The Miners kicked off but the Redmen fumbled the catch and Kelly, coming down fast, fell on the ball on the Teachers 40 yard line. Hassler gained about 20 yards from an off tackle play from where after a few unsuccessful line plays Thornton tossed the oval; over the goal line to Malik for another touchdown. Londrigan kicked goal for the extra point. The Miners got off a nice kick-off but Gorenstein was ousted from the game for slugging and the Miners penalized half the distance to the goal line. The Miners gained possession of the ball and Hassler kicked out of danger. A few plays later Malik blocked the Redmen's return kick and the Miners recovered the ball. After advancing the ball about 20 yards from line plays Hassler passed over the goal line. Altho the pass was complete the referee ruled that two Miners touched the ball in succession on the receiving end of the play. The Teachers kicked out to the center of the field as the half ended.

The Miners took the kickoff at the start of the second half and without losing the ball, marched down the field for a touch down. Hassler passed over the goal line to Malik for the last few yards. Londrigan again kicked goal. Near the end of the quarter the Miners were penalized 25 yards for clipping and followed up this disaster by a fumble which gave the Redmen the ball on the Miner 25 yard line. Tomlinson pulled the Miners out of the hole when he intercepted a Teacher pass on the first play. The Miners soon pushed the ball back near the center of the field. Hassler passed 35 yards to Schofield, who went around end on the next play for another Miner tally. Again Londrigan kicked goal for the extra point. The rest of the game was occupied by exchange of punts.

Starting Lineup:

Miners	Position	N.S.T.C.
Londrigan	.....l.e.	Clark
Yarber	.....l.t.	Nuschbaum
Lacy	.....l.g.	Gullic
Kirkpatrick	.....c	Marston
Gorenstein	.....r.g.	Neet
Kock	.....r.t.	Grubb
Malik	.....r.e.	Littlefield
Schofield	.....q.b.	Goddard
Hyland	.....r.h.	Munn

Kellyl.h. Pierce
Sutherlandf.b. Duke

Summary of the game.

Score by periods:

Miners0—14—7—7
N.S.T.C.0—0—0—0

Miner substitutions: Thornton for Hyland, Tomlinson for Kirkpatrick, Williams for Kelly, Andres for Gorenstein, Hassler for Sutherland, Koch for Gibson, Schofield for Williams, Gibson for Sturm, Adams for Malik, Kelly for Schofield, Andres for Lacy, Runder for Londrigan, Straughn for Kelly.

Touchdowns: Miners, Malik (3)
Schofield.

Extra points: Miners, Hassler, Hyland, Londrigan (3)

First downs: Miners, 22, N. S. T. C. 6

Yards from scrimmage: Miners, 265, N. S. T. C. 89

Punts: Miners 6 for average of 36 yards. N. S. T. C. 5 for average of 26 yards.

Passes: Miners, attempted 12, completed 5 for 139 yards. N. S. T. attempted 8, completed 1 for 10 yards.

Fumbles: N. S. T. C. 4.

Penalties: Miners, 4 for 60 yards. N. S. T. 2 for 10 yards.

Officials: Referee, Walkingstick, (Dartmouth); Umpire, Abbot, (Ok.); Head linesman, Boydstum (Ok.)

Continued from page one.

the A. S. C. E.

A fitting representation of the size and energy of the group is found in its professional engineering society, the American Society of Civil Engineers. On its rolls are the names of all sophomores, junior and senior members of the department, and freshman civil engineering students are equally free to take part in its work. Organized many eons ago and growing under the especial guidance of Prof. Butler, the society this year is in an excellent condition, strongly supported by its members in carrying out an ambitious program of talks and shows.

A typical meeting opens with Marion Dillingham at his customary position. After his short introduction of the subject of the evening he introduces the first of the speakers and leaves the floor to them. It is customary that preceding the principal speaker short talks are given by student members, and a very good standard is maintained in these preliminary talks. The principal speaker gives the concluding talk, and an

examination of a list of the speakers who are appearing before the A. S. C. E. will suffice to show the excellence of the entertainments. To date Profs. Harris and Bardsley and Vern Alexander have had their place on our programs. In the future other good talks can be counted on, the first of these on Dec. 4, with Mr. Beckman of the U.S.G. S. as speaker.

With the entertainment program of the A. S. C. E. becoming well established this year we have high hopes for its extension and amplification in years to come. Then supplementing speakers drawn from the local organization we will be able to hear engineers in varied lines of the profession explain the latest procedure in the engineering field.

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STATE COOPERATION IN DEEP ROCK WELL DRILLING.

News of excessive costs of some wells, knowledge of the use of improper methods of drilling, epidemics resulting from the contamination of public water supplies and complaints from the public asking for water of better quality, caused the state to cooperate with the cities, towns, public utilities etc., to help secure a dependable and potable water supply at a probable economy.

The ground water resources of Missouri have been studied by the Missouri Bureau of Geology and Mines and information regarding the water bearing formations and quality has been collected for all sections of the state. It has been found that deep rock wells could be drilled with assurance of good quality and supply in all of Missouri with the exception of most of the area north of the Missouri River and the western portion from Kansas City to Jasper County in which sections such wells yield blackish, salty or highly mineralized water.

Important as the above work is, the real value of state cooperation is however, in the protective measure taken to assure the community a sanitary and uncontaminated water supply. Investigations of contaminated well, which in some cases resulted in epidemics, showed in most cases that the manner in which a well was cased was directly responsible for the contamination of the water. Because of the numerous solution channels and crevices characteristic of the rock formations in Missouri, (especially of the Ozark region) which in some cases led from sink-holes into which sewage had been deposited, adequate casing to the proper depth and tight sealing is imperative.

Consequently the State Board of Health recommended certain specifications covering sanitary features on wells drilled in rock, which are (briefly):

(1) At least one week before starting to drill the driller shall send a written request to the State Geologist who will furnish small set of sacks and a drill record book. The well driller shall save a sample of cuttings from every screw and place same in sacks properly labeled.

(2) The well shall be cased to a screw point steel or wrought iron pipe, installed so as to be water proof, and extending from 4-6 inches above the elevation of the finished pump room floor to such a depth as recommended by the State Geologist

to effectively shut out all contaminated surface water.

(3) A satisfactory seal shall be made as recommended.

(4) Samples of the water shall be collected at the end of the test pumping and completely analyzed chemically regarding iron, manganese and hardness content.

(5) The well must be completely logged.

Such work of the State is important because, deep wells are used to degree for they are an economical means of water supply, and has proved its worth by providing sanitary and satisfactory supplies of water from all the wells drilled on the co-operative basis. Surely this is a proof that the State realizes the meaning of "Salus populi suprema lex esto."

TALEQUAH RAVINGS.

Miner headquarters were established at the Hotel Severs. Most of the Miners (those who had any money left after the activities in the baggage car) immediately tried to grab off a few winks of sleep. The hotel lobby had been plentifully decorated by the girls from Northeastern with the colors of both schools. About 10 o'clock the lobby was a mass of Miner alumni, profs, bandmen, plays, Northeastern girl razzers and some few traveling salesmen trying to keep Palmer and "Coxey" out of their sample cases. The Northeastern girl razzers cut lose with a yell and the Miners answered with a bellow that nearly stopped the clock. Yells and war cries, school songs and the babel of 52 Miners trying to invade the wigwams of some 125 Northeastern squaws, surely let the world know the Miners were in town. And was there a wail when the razzers found out some Miner had painted their sign (Beat the Miners) to read Miners, Beat Northeastern!? Also the beautiful little lot across from the hotel had a nice No Parking sign dotted with Miner names. Incidentally three Miners autographed a paper as Parker Hall. The cheer leader sure wondered how there could be so many fellows of the same name. By the way, one of our band "generals" was besieged by the squaws for some of his brass buttons. He managed to come out whole which proves that experience at home stands in good stead abroad.

The parade was quite a success. The Teachers had an 18 piece band, Muskogee high a 50 piece band and the Miner band 23 strong. The

Miners enjoyed a beautiful conversation with a lady in a car about 87 feet long and probably would have still been talking if Potter hadn't wanted to ride. The funny part of the parade occurred when a traffic cop made a motorman run his street car back about half a block to give the Miners plenty of room to parade. Did we rate? Everyone but Coxey and Chadden who couldn't get in the game by carrying a drum cover. Funny how the Miners take to music so hurriedly.

There were about six different cheering sections scattered around the park. The Miners gathered at one end and when they cut loose with the "Mining Engineer" the other groups just naturally had to sit and listen. It has been rather accurately estimated by some of the more sober Miners, that the "Mining Engineer" was played between 115 and 118 times, sung on 52 street corners in 11 different tongues and in 87 counties along some 446 miles of Frisco track. The Northeastern girls said: "Sing that about jolly fellows" and "dress him up in green." Anyway, many a co-ed went back to Talequah with that old Miner war cry ringing in her dome.

The Miner band found out that they had plenty of competition and as Ross remarked later, it was all they could do to drown out those other two bands.

Many compliments were thrown at "General" Harkes and his retinue. An army officer who attended the game made the remark that we had the best R. O. T. C. band he had ever listened to. The bandmaster of Northeastern requested a copy of their own school song, which director Scott obligingly furnished his own personal arrangement.

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THE MISSOURI MINER.

A weekly paper published by the Students, in the interest of the Alumni, Students, and Faculty of the Missouri School of Mines and Metallurgy, Rolla, Mo.

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M. S. M. CIVILS ON STATE HYDRO-ELECTRIC JOB.

Civil Engineering Graduates Taking Active Part In Huge Construction Project On Osage River.

The Federal Power Commission has granted the Missouri Hydro-Electric Power Company full license to build a dam across Osage River four miles above Bagnell, in Miller County. It will be nearly one hundred five feet high and will impound a body of water one hundred thirty miles long having a shore line of nearly fourteen hundred miles. The plant will have an initial installed capacity of two hundred ten hundred fifty thousand horse power for the ultimate generation of three hundred and fifty thousand horse power. The contract has been let to Stone & Webster, Inc., who have renewed the construction work begun four years ago and will complete it in the near future.

This project is part of the huge program under way to exploit the natural water resources of the State. The total capacity of these proposed hydro-electric projects exceeds seven hundred thousand horse power with an estimated total cost of approximately seventy-five million dollars.

The work done by the Water Re-

sources Branch of the United States Geological Survey at its local station here in Rolla under the supervision of H. C. Beckman, District Engineer, has been a vital factor contributing to the ultimate success and completion of this undertaking. The vast amount of data collected by this Bureau in the way of stream flow investigation has been invaluable in establishing the feasibility of water-power development in this State which doubtless otherwise would have received scant attention.

It is needless to say that this program will furnish many excellent opportunities along varied engineering lines to graduates from this school in the next few years.

As usual, the ubiquitous Miner, ever in the van-guard with respect to his particular phase of engineering work, has stepped out into the lime-light in the Osage River project.

Having graduated from the school of mines as potential Civil Engineers, they soon scatter to far corners of the country there to carve their niche in their chosen profession. But for one reason or another, a small group of these men have drifted back to their native State to engage in work not far distant from that historic spot where they first pondered the application of the pluvial index and other disconcerting laws.

Among this group which represents the School of Mines are to be found several familiar names:

Lawrence Castleman, '20, lately with the Illinois State Highway Commission, is on the job at the site of construction as chief of party of a transit crew.

W. S. Frame, '23, formerly Assistant Division Engineer at the local water resources station and later serving in the same capacity at the Fort Smith, Arkansas branch is doing detailed estimate work in the engineering office.

W. E. Casey, '24, who left here to take a position with the Missouri State Highway Commission, is now at the construction camp serving as chief of party.

Warren Smith and Albert Hill, both graduates of '28, the latter formerly Junior Engineer on the staff of the local water resources station, have position as instrument men in transit parties.

R. S. (Tuffy) Ditmer, '29, whose first position after graduation was that of Junior Engineer with the C. & E. I. R. R. in Illinois, also has an instrument man's job.

Phillip Schuckman, ex-'30, who is

temporarily out of school, is still another embryo civil who squints thru the gun with the avowed intent that this dam will be plumb, square and level!

Pete Scott, formerly at M. S. M. with the Engineering Corps under Captain Moore, is also at the construction camp working as expert mechanic.

It is easily seen that M. S. M. men are doing their share in placing the old school in the foreground as an educational plant capable of turning out conscientious, hard-plugging, intelligent engineers.

STRUCTURAL ENGINEERING.

Of all the activities to which engineers devote their energy and their talents, none are more striking nor none more profoundly affects the progress of our present day civilization than structural engineering. The great structural achievements of the present day have chosen the ablest, the most daring, and the most energetic of our engineers and inspired them beyond the dreams of a few years ago. The mobilization of capital and engineering talent has made possible the large scale of industries and business enterprises that mark our Nation as the leader.

In this short article, I wish to touch on the opportunities for Civil Engineering graduates in one phase of this important field of engineering, that of Building Construction.

It has been estimated that the annual expenditure in this country for buildings during recent years has been over seven billion dollars or about ten percent of our total income. Some authorities are of the opinion that the volume of construction during these recent years represents the normal requirements necessary to take care of the two-million annual increase in population, the replacement of old buildings, the industrial expansion, and the very large annual fire loss. It is also probable that a gradual increase in the annual construction volume may be expected for some time to come.

While the design and construction of buildings requires the services of architects, engineers, contractors, draftsmen, mechanics, laborers, and many others, it is readily seen that there are numerous opportunities for the graduate civil engineer well trained in the basic courses underlying structural engineering. We have today the architectural engineers, who is a combination of struc-

tural engineer and architect. The architect, as such, can very ably handle the aesthetic side of building construction, but it takes the structural engineer to make it safe, useful and permanent. The opportunities in the field of designing and drafting need not be more than mentioned here, but the real opportunities for our civil engineering graduates in the structural field lie with the contractors. More and more are the better and bigger contractors turning to the engineering schools for their future superintendents, construction foremen, etc.

A large percentage of the prominent contractors in the building field, themselves engineers, reveals a golden future for the civil engineering graduate interested in structural engineering.

It is becoming more evident each year that a large percentage of our senior civil engineering students are vitally interested in the structural phase of civil engineering, and many of us hope that in the near future we will be able to offer a structural option in the department to accommodate this increasing demand for courses in structural engineering.

E. W. CARLTON

HIGH SCORING TEAMS

Mr. Charles Parker of Fresno brings up a point about the old "Wonder Teams" of Andy Smith at California.

He alleges that in a discussion with old grads from the Missouri School of Mines of Rolla, Mo., he claimed one of Andy's teams had a higher scoring record than the M. S. M. with its total of 540 points to 0 in eight games one season.

Mr. Parker probably has the California spirit at heart, but I am afraid the records won't support him.

The late Andy Smith's 1929 team was his highest scoring contraption, and it rolled up 482 points in eight games to 14 scored by opponents. The second highest scoring team was Andy's 1921 team, which tallied 313 points to 33. Thereafter the scores fell off, until in 1924 California was tied both by Washington and Stanford.

The 1920 California team beat the Olympic Club 21 to 0, Mare Island Marines, 88 to 0, St. Mary's 127 to 0, Utah 63 to 0, Oregon State 17 to 7, Washington State 49 to 0, and Stanford 38 to 0. Total, 482 to 14. That was the team which licked Ohio State 28 to 0 in the 1921 New Year's Day

classic. Adding these points the Bears had 510 for the complete season.

The Missouri School of Mines team referred to by Mr. Parker beat Missouri U. 9 to 0, Washington U, 19 to 0, Arkansas 40 to 0, Kansas School of Mines 87 to 0, Drury 68 to 0, Pittsburgh Normal 104 to 0, Kirksville 150 to 0 and St. Louis U. 63 to 0.

Dr. L. E. Woodman, chairman of the Graduate Committee, together with the entire committee, entertained the graduate students and faculty Wednesday evening at the club room in Metallurgy Building. Dr. C. H. Fulton spoke on the "Director's Program for Graduate Students in the School of Mines." It was pleasing to hear the Director's plans for such students and such work. He said that there are two requirements essential in any graduate school. They are: First, instructors on faculty who are competent to give graduate courses and who have the time to devote to them; second, facilities for carrying on such work: well equipped laboratories and a good library for the work offered. He stated further that members of the faculty who offer graduate courses should be relieved of some of their regular teaching program. He also said that the graduate committee of the School of Mines has entire charge of the plans for graduate courses here, whereby the Master of Science Degree is given. When students wish to work on their Ph.D. degrees there is a very definite understanding between this branch of the University and the University at Columbia. Work for the Ph.D Degree in certain scientific courses may be done here and the degree conferred at the University at Columbia.

Dr. C. V. Mann of M. S. M. faculty spoke on "Present Status of Graduate Work in the Great Universities of this Country." While working on his Doctor's degree at Iowa State University last year, Dr. Mann served on a committee to investigate conditions of graduate work done in our universities. Their findings were very interesting and informative as related by Dr. Mann.

A quartet composed of Professors Mann, Farnham, Rankin and Mr. Cullison entertained with some delightful songs.

At the conclusion of the program, light refreshments were served. Mrs. E. E. Sease and Dr. Ida Bengston

served at the tea table, and were assisted by Misses Eulalie Powell and Elizabeth Long, graduate students.

This program of the Graduate Committee, arranged by the Chairman, Dr. Woodman, was quite an innovation. Judging from the crowd and the enjoyable evening, it is to be hoped that Dr. Woodman will multiply such fetes to the graduate students of M. S. M.

AN IDEA

There's a long, tall Junior that roams about the campus who should get wise to himself. He is enrolled in Ceramics and resides at 804 Main St. He also has a VERY LOUD VOICE. At various Special Lectures, and at other entertainments that we have, he always succeeds in making an ass of himself. Let's suggest that if he doesn't like these affairs, that he either stays at home or acts like a gentleman if he does attend.

MINERS TO MEET DRURY PANTHERS IN FINAL GAME OF SEASON.

Coach Grant will leave early Thursday morning for Springfield where the Miners will close their football season in a clash with the Drury Panthers. The Drury squad had an open date last week and all their time for the past two weeks has been devoted to getting into shape for the battle with the Miners. Although the Miners are credited with a much stronger team, the Panthers promise to put up plenty of fight. This will be the thirty third annual clash between the two teams. The Miners have the edge in total games won.

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ACKNOWLEDGEMENT

We wish to thank the merchants of Rolla, the faculty and the students of the School of Mines, the Lyric Theatre, and all those who made it possible for us to make the Muskogee trip.

M. S. M. R. O. T. C. BAND.

VISITS TO POTSDAM.

By C. E. Bardsley.

Abstracts from Diary

Yesterday I went to Potsdam with an elderly gentleman and his wife. I met these people on the boat coming over. Their name is Cahill. The man is an Irishman. She is German, and was raised in Charlottenburg, just about two blocks from the Technische Hochschule. They now live in Cincinnati in the States. He met her in St. Louis twenty-three years ago. She was head nurse in the College of Physicians and Surgeons on Jefferson avenue, and he then had a job decorating the building. He is a retired contractor and draws a pension as a Spanish War veteran.

I am glad they went to Potsdam when I did, for should I have gone alone, I probably would not have seen all of Friedrich der Gross' Castles. We went through some of them. The finest one was San Souci, where the Kaiser spent three months each summer when he lived in Berlin. In San Souci I was in the room and saw the chair in which Friedrich der Gross died. I suppose that if the Kaiser were present, he would have had us all shot at sunrise for taking such privileges of going through his house with our shoes and hats on. When the Kaiser lived there, one had to put on felt bottomed shoes to keep from marring the floors. Now they don't seem to care what the Kaiser thinks; and the "Wacht Am Rhein" is not sung any more. If you want to get a brick thrown at you: Just sing "Wacht Am Rhein!"

In a large woods, I should say about five times the size of Forest Park in St. Louis, are dozens of castles in Potsdam. Here the Crown Prince and all the other Princes as well as the Kaiser once lived. These castles resemble our World's Fair buildings. I wouldn't give my little home in Rolla for a dozen of them for conveniences. The castles had no means for heating, no electric lights, no gas, no bath rooms, no modern conveniences whatever. The German Hotels are as bad in this respect today almost. It took most of the day to see all the Castles. The late Empress is buried at Potsdam.

Another day in Potsdam: Last week I was invited by Professor Dr. Ing. Kohlschutzer, Direktor of the German Coast and Geodetic Survey to come to Potsdam and visit the Survey. I was shown the instruments of precision in the way of theodolites, base bar apparatus,

Earth's Magnetic force instruments, seconds, half seconds, and quarter seconds pendulums, time signal room, the seismograph, zero triangulation station of Germany, star transit instruments, etc. At present, Dr. Kohlschutzer is in the midst of the great task of recomputing the net of the primary triangulation system of Germany by a new method of least squares by Dr. Woltmann that is to distribute the error of closure over the entire net uniformly and not all in one place as with the old computation. Dr. Kohlschutzer wished to be remembered to Mr. Wm. Bowie of the U. S. C. & G. S. at Washington; and to Dr. Bower of the Carnegie Institute, both of whom I have met on several occasions.

This same day in Potsdam, I made another acquaintance: that of Professor Dr. H. Ludendorff, Astronomer and Direktor of the Brauhausberg Observatorium or Sternwarte. Dr. Ludendorff, of course, is the brother of the General. By the way, he said that his brother and family were quite well and that I should make it a point to meet his brother when in Munster. He very kindly showed me through the many laboratories and domes of the Observatory and finally we went up in the Einstein Tower, which is quite a weird looking structure. A picture of the Einstein Tower appeared in the Geographic Magazine a couple of years ago. It houses a vertical sun reflecting telescope of Zeiss construction, very similar to the sun telescope at Mt. Wilson, California. The telescope is stationary and the sun's rays are reflected into it by two large parabolic mirrors. Observations are made deep in the ground below the tower.

When I asked if they thought Einstein was right; they said that it was not Einstein who should make such statements, but that it was the work of the observatories. Some rich business men, I was told, gave Einstein some money and he erected the tower and for that reason alone, it bears his name according to one of Ludendorff's Astronomers. It seems that I find everywhere that the German's pursuing the same line of research are quite jealous of their colleagues: Astronomy or Hydraulics.

On another day I visited the observatory of the University of Berlin in the little town of Neu-Babelsberg on the Havel, and only four miles this side of Potsdam.—Well, I'll tell you about the courteous reception by Dr. George Struve at New

Babelsberg next time.

Potsdam is 27 miles west of Berlin and is reached by electric train from the metropolis in 40 minutes.

MINER CAGE SQUAD STARTS PRACTICE

About thirty men answered Coach Rapp's call for candidates for the Miner basketball squad. Rapp will be forced to build his team around Heilig, Tieman, and Carpenter, who are the only lettermen back from last year. The men have been going thru light limbering up exercises. All indications show some very promising material from which to pick the team. The Miners' schedule has not been completed as yet, but a number of interesting games are already on the books.

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SCHUMAN'SWill the Freshman who borrowed
our Miner Stencil please return at
once so that others may use same.**TRIANGLE HARVEST DANCE.**

The mystery of how and why each successful and exceedingly enjoyable fraternity dance given on this campus is invariably characterized as either the best or one of the best in modern history, was solved by those who attended the Triangle Harvest Dance last Saturday night. With so many "best" dances as predecessors, it was necessary for the Triangle costume affair to be very good indeed. So it was! Anyone attempting to decide in favor of any previous dance over this recent social function was confronted with a problem involving endless hair-splitting. Therefore, the title of very best has been handed down.

Positively everything necessary to a dance worthy of that inherited title of "best ever" was present. Lowell Reeves presented an unrivaled assortment of syncopation, reaching far back into the history of the evolution of music to bring forth that old classic "She'll Be Comin' 'Round the Mountain" which provoked enough pep to triple the stress upon the foundation of the house.

Needless to say the costumes of the guests were above reproach. Decorations were in accordance with the Thanksgiving spirit which was so prevalent.

A very clever assortment of dates, local and imported, provided no small portion of the pep and spirit of the party.

Chaperons of the party were: Prof. and Mrs. Carlton, Mr. and Mrs. H. S. McQueen of Rolla and Mr. and Mrs. A. L. McCall of St. Louis. Out-of-town guests were Misses Catherine Lang, Billy Peer, Fairy Peer, Minerva Otte and Anna Marvin of St. Louis and Miss Mildred Wommack of Springfield.

CROSS HAIRS

We hear that Book Rucker is a salesman at the new hotel.

Did you hear about the time L. H. King was mistaken for a tree? For further information on the subject ask any member of the Topog class in the spring of '28.

It seems that the two student assistants in Highway Engineering lab. were selected on their chalk-throwing ability.

We hear that L. H. King, the president of the M. S. M. Glee Club, had an invitation to broadcast over KMOX. Everything was lovely until it was discovered that Reeves was on the other end of the line.

Have you noticed how Joe, Ernst,

and Clarence are dressing up these days? Why? The department now possesses a girl stenographer. This has caused quite a lot of embarrassment among the students. They just will forget that a lady is in the near vicinity.

Did you see the two girls dressed for a slumber party at the Triangle dance?

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Continued from page one.

designer and constructor.

In these days of amazing expenditures in construction works, who is better qualified than the engineer, trained in the University and by experience and subsequent study to decide what line of improvements and kinds of constructions are most needed and will do the most good? Who is less apt to depart from the path of rectitude in directing such matters? Who could better perform the major duties of city mayor? Who could develop into a more efficient and dependable manager of a city, county, railroad, public utility, state? Who is better qualified to project the curves into the future, to foresee an upturn, or a break?

The engineer may be better qualified than anyone else to make a mental penetration into the future, but courage and confidence fails when he tries to foresee developments in another generation to measure up to what has come in that just past.

Young men may find food for thought in the following statement:

Here is a partial list of outstanding developments in Civil and Mechanical Engineering that have come about since the writer appeared on the

campus of M. S. M. The gas engine, steam turbines, centrifugal pumps, air lift pumps, 100 per cent increase in efficiency of steam engines, Hydro-electric developments, 90 per cent public utilities business, aviation, wireless communication, the "Movies," the radio, the discovery of oil in the southwest, 90 percent of irrigation and land drainage, the automobile, reinforced concrete, concrete highways, subways in cities and under rivers, buildings over twenty-one stores, heavy earth moving machinery. Finally, and including all, the "Machinization" of industries, including agriculture, by which the power of production now exceeds the demand for consumption.

The writer cannot include developments in industrial chemistry and in metallurgy, not being familiar with those sciences and their developments.

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